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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,328	06/04/2001	Kazuyuki Miya	L9289.01146	4758

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Stevens Davis Miller & Mosher
Suite 850
1615 L Street NW
Washington, DC 20036

EXAMINER	
UBILES, MARIE C	
ART UNIT	**PAPER NUMBER**
2642	#4

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/857,328	MIYA, KAZUYUKI	
	Examiner	Art Unit	
	Marie C. Ubiles	2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *04 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it is below the specified minimum limit of 50 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any

inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 1, 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chin et al. (US 6,694,155) in view of Karlsson et al. (US 6,470,192).

Chin et al. disclose a radio base station apparatus comprising a diversity antenna (or *antenna array*)(See Abstract, lines 1-3); transmitter provided for the antenna (See Fig. 2, "to transmitters"), transmitter having calculating means for calculating a transmission weight (See Fig. 2, D/L Beamforming Weight Generator) from a reception weight (or uplink channel covariance matrix - UCCM) information obtained by using an uplink signal (See Description, Col. 5, lines 61-67, Col. 6, lines 1-5), and multiplying means (See Fig. 2, "Multiplier") for multiplying a transmission signal spread with a predetermined spreading code by the transmission weight (it may be appreciated from the Fig. 2, the sequential steps of "D/L Beamforming Weight Generator" and "Multiplier").

It is inherent from CDMA operations to use a set of spreading codes for receipt/transmission of signals (See Description, Col. 5, lines 45-50).

It can be seen that Chin's et al. system lacks the limitation of the base station comprising "two diversity antennas, each comprised of a plurality of antenna elements, spaced apart from each other by a distance enabling space diversity".

Karlsson et al. teaches "...in FIG. 4, two antenna arrays 400 and 402 are used to achieve diversity for mitigating the effects of radio signal fading.[...] if the beamforming devices associated with the first and second arrays 400 and 402 are designed to form beams such that one beam from one of the beamforming devices always cover an area next to areas covered by beams from the other beamforming device..." (See Description, Col. 5, lines 6-9 and 17-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chin's et al system by adding two antenna arrays (or diversity antennas) as taught by Karlssson et al., and thus in this manner provide the base station with means to reduce radio signal fading.

Claim 4, 5 and 7 are rejected for the same reasons as claim 4.

4. Claims 2-3 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Chin et al. (US 6,694,155) in view of Karlsson et al. (US 6,470,192), as applied to claims 1 and 4 above, and further in view of Nishimori et al. (US 6,375,182).

As for claims 2-3 it can be seen that the combination of Chin et al. and Karlsson's et al. systems lack the steps of "wherein each of said transmitters further have offset providing means for providing a transmission signal with a

phase offset, or a phase offset and a power offset" and "wherein said multiplying means operates as said offset providing means".

Nishimori et al. teaches "Finally, the weight multiplier circuit 2-11 multiplies the calibration value thus obtained and the amplitude/phase value of the receive signal, and the transmission is carried out by using the product of said multiplication. Thus, the calibration among the branches of an array antenna is carried out in a transmitter/receiver itself..." (See Description, Col. 10, lines 39-44).

It would have been obvious to one of ordinary skill in the art to modify Chin et al. and Karlsson et al. combination in order to provide a system that will provide no degradation of transmission efficiency.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nishimori et al. (US 6,690,952) teach an adaptive array antenna transceiver apparatus.

Whinnett (US 6,192,256) teaches devices for transmitter path weights and methods therefor.

Harrison et al. (US 6,434,366) teach a method and system for estimating adaptive array weights used to transmit a signal to a receiver.

Kohno et al (US 6,522,898) teach system and methods for calculating weight values in a radio communication system.

Youssefmir et al. (US 6,141,567) teach an apparatus and method for beamforming in a changing-interference environment.

Yun (US 6,643,295) teach a power control with signal quality estimation for smart antenna communication systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marie C. Ubiles whose telephone number is (703) 305-0684. The examiner can normally be reached on 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (703) 305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marie C. Ubiles
July 12, 2004.

AHMAD MATAR
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600